MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

VOL. XXVI. *Supplemental Notice.* No. 9.

Extract of Letter from Professor F. Kaiser, of Leiden, to the Astronomer Royal, dated 1 *August,* 1866.

From my investigations it appears that your double-image micrometer has far too little attracted the attention of Astronomers.

The many discrepancies one discovers in the measurements of double-stars that have been performed by different Astronomers have induced me, a year ago, to measure the principal double-stars, as well with your double-image micrometer as with the wire-micrometer. I wished to measure each star with each micrometer, on at least five different days; but the air was never so tranquil as was necessary for my measurements, and if I would make any progress, I was obliged to measure even when the dispositions of the air made measuring almost impossible. I have already closed my measurements on several double-stars with both micrometers, and, as a proof, I give you in the adjoining table the results for all the double-stars I measured, of which the distance is less than 12″, with exception only of two, the measuring of which has taken place under too bad circumstances. I have not yet had time to reduce accurately the measurements performed with your micrometer, and, in the adjoining table, I have provisionally adopted for the value of a revolution of the screw the constant number 7″·50. A more accurate reduction cannot modify the results above a few hundredth parts of a second. The harmony between my first results is greater than generally exists in micrometer measurements on double-stars, and it would have certainly been still much greater if the air had not thwarted me. In Mr. Main's measurements with the Oxford heliometer, published in the *Radcliffe Observations*, and in those with the heliometer of Königsberg of Dr. Auwers, published in the *Astron. Nachr.* No. 1393, I found sixteen that have taken place nearly at the same time. In eleven of those sixteen measurements the discrepancies in the distances are more than 0″·25. In γ *Androm.* the difference is 0″·69; in

θ Serpentis, 0″·90; in *η Cassiop.* 0″·93; and in *β Cygni* over 1″·42. Luther at Konigsberg differed, when using the same heliometer, sometimes a full second from Peters and Auwers (*Astron. Nachr.* No. 1393). Very great differences are also found between the measurements performed with the wire-micrometer. The great harmony I obtained with two quite different instruments does prove that the discrepancies must far more be sought in the observers than in the instruments. The actual measurements on double-stars appears to me far too inaccurate for the consequences one will derive from them.

In the screw of the wire-micrometer, delivered by Mr. Merz, I found errors that amounted to 1″. A paper on that micrometer has been printed in the Periodical of the Royal Academy of Amsterdam.

	Star.	With the Wire-Microm.			With Mr. Airy's Microm.		
No. Σ	Name.	Epoch.	Dist.	Angle of Position.	Epoch.	Dist.	Angle of Position.
			°			°	
2737	ε Equulei	1865″·85	1·02	103·0	1865″·75	1·08	...
2583	π Aquilæ	5·84	1·34	117·6	5·79	1·44	...
2055	λ Ophiuchi	6·50	1·45	22·8	6·53	1·38	26·9
2262	τ Ophiuchi	5·68	1·51	247·8	5·57	1·50	250·9
948	12 Lyncis	6·28	1·64	316·5	6·35	1·59	317·3
1523	ξ Ursæ Majoris	6·45	2·08	87·8	6·39	2·10	86·7
2383	5 Lyræ	5·85	2·35	142·6	5·75	2·35	143·4
774	ζ Orionis	6·21	2·36	155·5	6·11	2·31	150·9
1877	ε Bootis	6·47	2·63	324·8	6·50	2·74	325·8
2382	ε Lyræ	5·85	2·95	20·6	5·75	3·12	16·3
1424	γ Leonis	6·24	3·09	110·7	6·33	3·15	109·9
2909	ζ Aquarii	5·85	3·11	158·9	5·75	3·34	157·4
1954	δ Serpentis	5·69	3·13	194·4	5·54	3·18	192·3
1009		6·28	3·30	337·0	6·34	3·23	335·1
1670	γ Virginis	6·46	4·01	165·9	6·38	4·23	164·6
738	λ Orionis	6·21	4·09	41·3	6·06	4·33	42·1
2140	α Herculis	5·69	4·64	115·4	5·72	4·56	115·7
1223	φ^2 Cancri	6·24	4·71	214·1	6 33	4·86	215·3
1110	α Geminorum	6·27	5·16	240·8	6·37	5·23	241·6
1888	ξ Bootis	6·46	5·23	298·6	6·42	5·19	300·8
2272	*p* Ophiuchi	5·68	5·31	100·4	5·56	5·34	100·9
1196	ζ Cancri	6·24	5·33	318·3	6·33	5·51	318·7
1224	IV Cancri	6·24	5·65	220·0	6·33	5·85	221·3
1864	π Bootis	6·45	5·73	100·6	6·40	5·68	101·
1965	ζ Coronæ	5·69	6·01	303·1	5·72	6·00	302·7
1998	ξ Libræ	6·49	6·93	70·5	6·53	7·05	70·0
2760		5 87	9·67	45·3	5·96	9·60	45·5
2737	ε Equulei	5·85	10·45	76·4	5·75	10·26	75·6
752	ι Orionis	6·21	10·87	140·6	6·09	11·13	140·5

To the Fellows of the Royal Astronomical Society.

Gentlemen,—The accompanying Letter has been addressed to me for the purpose of communication at our first Meeting on November 9; but, for obvious reasons, I have thought it more advisable to circulate it without delay.

I am, Gentlemen,
Your obedient Servant,
C. PRITCHARD.

Somerset House, Oct. 24, 1866.

The November Meteors 1866.

To the President of the Royal Astronomical Society.

Sir,—As the attention of Astronomers to the appearance of the Great November Shower has lately been aroused by a prediction of Professor Newton that the November Meteors will return in the present year; and as the prediction is advanced upon grounds so purely astronomical that it is not in the least degree likely that it will be contradicted by the event, I scarcely need to apologize to you for requesting you to give your consideration to a short account of the chief points of interest to observe, or upon which the attention of observers will be most profitably bestowed.

The main body of the meteors is expected to visit the western shores of the Atlantic Ocean towards sunrise on the morning of the 14th of November. In the absence of the Moon darkness may be expected to add an exceptional character to the display, both for the numbers and brilliancy of the meteors, and for the peculiar features of leaving trains, &c., by which they are distinguished. Should it happen a few hours earlier than the predicted time, the maximum, instead of being visible in America, will be visible in Europe. For two years past, the 13th rather than the 14th of November has, in fact, been the principal date of the display. A strict watch for the return of the maximum display in England is accordingly recommended to be kept on both of the mornings of the 13th and 14th of November, by counting the number of the meteors at intervals or continuously from midnight until sunrise. Several observers might combine together, and dividing the points of the compass equally between them, one person might register for all, so as to avoid the possibility of repetition or of count-

ing the same meteor twice. The number of the observers should be stated, as well as the condition of clouds or the proportion of clear sky.

The planet *Venus*, when seen in the evening near its greatest brightness, is a suitable object for comparison with the meteors. Ordinary shooting-stars may be compared with the magnitude of the fixed stars, and larger meteors with the diameter of the Moon.

The duration of a meteor's light, or of its streak, may, after a little practice, be recorded very nearly to a sixth part of a second, by repeating letters of the alphabet immediately after the disappearance of the meteor. In the case of the most enduring streaks it is important to observe through the prism of a direct-vision spectroscope if the yellow line of sodium, or if the light of any other substance in combustion, is very brilliant in the spectrum of the streak.

During the hour from one to two o'clock, on each morning, a strict watch is recommended to be kept, with a view of obtaining as many simultaneous observations of meteors as possible at distant places. The following particulars of each meteor seen should then be recorded, viz.:—The instant of appearance to the nearest second of Greenwich time; the brightness, colour, and duration of the meteor, and of its streak; and its direction, as from one star, or from one part of one constellation to another, or the place of its first appearance and the point of its disappearance by an altazimuth instrument; or otherwise. Any peculiarity of its appearance, as if it changes its light or colour, or if it bursts, should be recorded. More observations will also be made in the interval from one to two o'clock, if the labour is divided with an assistant, who would register the time (by a good seconds' watch), and the other particulars of the observation in writing. For some minutes after the bursting of very large meteors any noise should be attentively listened for, noting the intervening time. Auroras should also be looked for and distant lightning.

The paths of the meteors prolonged backwards cross each other at a point about the centre of the "sickle" in the constellation of *Leo*, from which point all the meteors appear to emanate. To fix the exact position of the point and to map as many meteors as possible on each morning during the interval from one to two o'clock, the Luminous Meteor Committee's Star-maps are distributed to experienced observers, who have already availed themselves to useful purpose of their skill in this kind of observations.

By means of the maps and by attending to these directions the meteoric shower, it is expected, will be so well observed in England as to afford useful materials for discussion and for comparison with materials obtained at other places.

I am, Sir, your obedient Servant,

A. S. Herschel.

On the Depression of the Barometric Column by the Vapour of Mercury. By Gen. R. Shortrede.

It is well known that when a barometer has been stationary for some days, globules of mercury are to be seen adhering to the sides of the vacuum part of the tube, and more abundantly the longer the interval. These globules are formed by the condensation of the mercurial vapour which is given off in greater or less quantity according to temperature, and condense on the surface of the glass when it becomes colder, in the same way as moisture is deposited on glass.

The quantity which rises is doubtless very small, but it is not altogether inconsiderable; and though usually disregarded, I believe its elasticity is such as very sensibly to depress the height of the mercurial column. In India, where I had a good deal of experience with barometers, I found I could not get a true reading till I had condensed the vapour by tilting the barometer so as to make the mercury click against the top of the tube. The difference of the readings before and after this operation was generally from 10 to 20 thousandths of an inch, and on one occasion I found it as much as ·023. My barometers were in unexceptionably good order. They had been repeatedly boiled, one of them more than twenty times, and so perfect was the vacuum that on being put up after lying for some hours in a horizontal position, the mercury, by electrical attraction, would adhere to the top of the tube, and not separate till shaken by tapping. The tubes of 32 inches remained full at Pana, where the usual height is 28, and on the top of Singi, where the proper height was 26, the tube remained full.

Even in this country the vapour causes a sensible depression. In the rooms of the Meteorological Society at Edinburgh some years ago, I said that, in my opinion, none of the barometers were showing the true atmospheric pressure. On taking readings of two or three of the instruments which admitted of being tilted there was a difference of from 4 to 6 thousandths before and after. In the cold weather of winter this depression may probably be not more than 1 or 2-thousandths, but in summer I have no doubt that it will frequently amount to 8 or 10 thousandths.

At Greenwich, on Saturday, I noticed and showed to others that the vacuum part of the barometer for outside indications was studded with minute globules, as was also the cistern, the sides of which under cover were plentifully studded, and on the iron float was one large globule, occasioned probably by the vapour, from its higher conducting power, condensing more readily upon it than on the glass.

The subject is one that seems to deserve investigation, and if my idea is correct a correction will be required on the registrations photographed at Greenwich.

6 *June*, 1866.

Spectrum of *Antares*, Rome, July 1866.
D Sodium line. *b* Magnesium line.
Beyond this, to the right, the spectrum, with the large prism, is very faint. It shows some bands with the new spectrometer.

On the Spectrum of Antares.

By the Rev. Father Secchi.

I have the honour of presenting the Royal Astronomical Society with a drawing of the spectrum of *Antares*. This has been made by actual measurement, but on a different scale of that of *α Orionis*, since the prism is different; this prism is one of Amici, with direct vision, but larger, and made by Secretan, of Paris. The points of reference are the lines D of the sodium and *b* of the magnesium. On the figure the lines have been so traced that a numerical scale can be obtained immediately by simply applying a metrical rule on the paper; one centimeter corresponding to one revolution of the screw of the micrometer.

Lately I have found that, for observing the most feeble spectra, it is sufficient to place between the object-glass of the telescope and the eye-piece a cylindrical lens of two or three inches focus, and behind it (between the eye-piece and the cylindrical lens) a prism of Amici of strong dispersive power, as those made by Hofman for his pocket spectroscopes. The image of the star becomes a line beautifully decomposed into its elementary colours, and the image can be seen with the common eye-pieces, and the distances of the lines measured with the common filar micrometer. With a power of 200 I have decomposed the bright bands of *Antares* into their luminary elements, as with the large spectroscope. I have also had beautiful spectra, and capable of giving the black lines of the green in some stars of the 8th and 7th magnitude. Applying this prism to a telescope of $2\frac{1}{2}$ inches aperture, I have been able to see the black lines of *α Aquilæ* and the bands of *Antares*. This system may be useful for amateurs, when no absolute but only relative measures of the lines are wanted.

Rome, August 1, 1866.

On the Craters of the Moon. By Richard Hodgson, Esq.

Most observers of the Moon have occasionally seen the hollow craters change their appearance and become solid high mountains, while the ranges of mountains become hollow crevasses. Generally it has been attributed to a fatigued vision, and probably by removing the eye from the telescope, in the course of a few minutes the illusion passes away. Many times have I been teased with these appearances, and it occurred to me that the delusion arose from the position of the shadows being the reverse of what we usually see, and that in the fatigued eye for the time the retina refuses to fulfil its duties and invert the image, for the instants the craters are seen as mountains; fortunately this can be easily demonstrated, by applying a reflecting diagonal solar eye-piece, with a power of 200, to the edge of the Moon when the craters are prominent, and observing first on the one side of the telescope in which the craters appear hollow, and then revolving the whole eye-piece 180 degrees, and observing from the other side of the telescope, the craters are at once transformed to mountains and the ranges of mountains to crevasses, and no power of will can change them back to their proper forms, though the revolution of the eye-piece to its original position at once restores them.

Chingford, Essex,
5th June, 1866.

Occultation of Jupiter's Third Satellite. By Capt. Noble.

I last night observed the reappearance of *Jupiter's* third satellite from Eclipse at $8^h\ 41^m\ 30^s{\cdot}1$ L.M.T. It took place quite sharply and suddenly; and I had but a short time before obtained my clock-error and rate very accurately by a transit of γ *Draconis*, my transit instrument being very carefully levelled mechanically, so as to eliminate all azimuthal error. Now the *Nautical Almanac* for this year states that this reappearance would take place at $8^h\ 43^m\ 55^s{\cdot}3$ G.M.T.; and what aggravates this remarkable discrepancy is, that my Observatory is actually some $17^s{\cdot}5$ East, or *fast* of Greenwich. I am desirous that this observation should be recorded in the Supplementary Number of the *Monthly Notices*, inasmuch as it will call the attention of other observers to this very curious anomaly, and will probably elicit records of observations of the same eclipse. I have written to Mr. Hind to ask whether it may not be a blunder of a computer? but shall look out very curiously for the exact time at which the reappearance

was seen at Greenwich, assuming that an observation was made of it. I may just say that I employed my Ross Equatoreal of 61 inches focal length and 4·2-inches aperture, with a power of 154, in observing the phenomenon myself.

Forest Lodge, Maresfield, Uckfield,
August 18, 1866.

The New Variable near ε Coronæ. By J. Birmingham, Esq.

The following extract from a letter, dated Millbrook, Tuam, July 7, 1866, addressed to E. J. Stone, Esq., contains an account of the first observation of this remarkable star.

"On my way home from a friend's house, on the night of May 12, I was struck with the appearance of a new star in *Corona Borealis*. It seemed at least fully equal to α of that constellation in size, and was superior to it in brightness. Its colour appeared to me nearly white, with a bluish tinge; and, during the two hours that I continued to observe it, I detected no change in its light or in its magnitude. I did not perceive the yellow or orange seen by subsequent observers. It shone quite like the neighbouring stars, without any particular unsteadiness or flashings. I regret to say that my instrumental means of observation were limited to an ordinary telescope with a power of about 25. I could not be sure of the exact time of my first seeing it, as I was then on the road, some distance from home; but I am certain it was between 11·30 and 11·45 P.M. Tuam time."

There is contained in the *Comptes Rendus* of 30th July and 6th August, 1866, an interesting paper by M. Faye, on Variable Stars, with especial reference to the temporary star in *Corona*. The conclusions are stated as follows:—

"En resumé, les étoiles dites nouvelles ne méritent pas ce nom, leur apparition presque subite n'est qu'une exagération du phénomène ordinaire des étoiles périodiquement variables, lequel repond lui-même à de simples oscillations plus ou moins sensibles dans le phénomène de la production et de l'entrétien des photosphères de tous les étoiles. Ces phénomènes considérés comme successifs dans l'histoire d'une étoile prise à part, caractérisent les progrès de son refroidissement et le déclin de la phase que j'appellerai volontiers solaire ou photosphérique. Quand ils se produisent ainsi avec le caractère d'intermittences irrégulières de plus en plus séparées par de très-longs intervalles de temps, ils sont les précurseurs de l'extinction défini-

tive, ou du moins de la formation d'une première croûte plus ou moins consistante. C'est pourquoi les phénomènes de ce genre ne se produisent que dans les astres d'un éclat déjà très-faible et n'aboutissent jamais à doter le ciel d'une belle étoile de plus."

Minor Planet ⑰ *Sylvia.* By N. R. Pogson, Government Astronomer at Madras.

A new minor planet, of about $11\frac{3}{4}$ magnitude, was discovered here on the morning of the 17th May, civil reckoning, by the aid of the same manuscript map which has already realised me the planets *Iris* and *Sappho*, and the four variable stars R, S, and T *Ophiuchi*, and U *Scorpii*. The new planet was, indeed, within the limits of my map of the last-named object in my long promised Atlas of Variable Stars. The first night's comparisons were made by means of the ring-micrometer of the Hartwell 5-foot telescope, so long and kindly lent me by the late Dr. Lee. All the rest were taken by the Boguslawski method, or difference micrometer; to my mind infinitely the best for all such extremely faint objects. Presuming upon its not having been previously found elsewhere, I have again selected a name from the list furnished me a few years back by Sir John Herschel, viz, *Sylvia*, the mother of Romulus.

The new Equatoreal by Messrs. Troughton and Simms will, I hope, be in use within a week hence, and with it the planet will be easily observable; but it is severe eye-straining for the Lerebours' Equatoreal, with the Moon above the horizon.

The Apparent Positions observed so far are as follows:—

1866. Madras M.T.	Mag.	App. R.A.	Log. Parallax Factor.	App. N.P.D.	Log. Parallax Factor.	Comparisons.
		h m s		° ′ ″		
May 16 14 47 51	11·7	16 15 15·69	+9·4967	107 28 48·9	−0·5973	10
16 15 28 12	..	16 15 14·54	+9·5972	107 28 49·2	−0·5664	10
17 16 10 41	11·6	16 14 27·70	+9·6810	107 28 59·0	−0·5467	16
18 14 22 56	12·0	16 13 45·05	+9·4054	107 29 8·1	−0·6325	18
19 13 37 27	11·8	16 13 0·39	+9·2143	107 29 20·8	−0·6466	18
20 13 33 27	12·0	16 12 14·07	+9·1984	107 29 31·4	−0·6475	20
22 13 28 22	11·9	16 10 40·50	+9·2419	107 29 55·1	−0·6455	20
23 14 12 46	11·8	16 9 51·90	+9·4565	107 30 8·4	−0·6257	20

The comparison stars employed have all been observed with the Meridian Circle of the Madras Observatory.

Madras, May 28, 1866.

Minor Planet ⑱ *Thisbe.* By C. H. F. Peters, Esq.

(*Letter to the Astronomer Royal.*)

The following are observations of an asteroid discovered here on the 15th instant, near daybreak, but not made sure of before the 20th, on account of dark weather intervening:—

1866.	Ham. Coll. M.T. h m s	R.A. h m s	Decl. ° ′ ″	Log ($p\Delta$)″.	
June 15	15	20 26 4	−17 37 ..	..	..
20	13 56 31	24 39·65	25 54·8	9·9682	0·8886
21	12 49 50	24 16·67	24 7·5	0·4355	0·8802
22	13 12 13	23 50·76	22 20·8	0·3009	0·8843
23	12 57 14	23 23·87	20 41·0	0·3568	0·8829
24	14 26 26	20 22 52·94	−17 18 56·9	9·6898	0·8887

Interrupted by other engagements, I have not been able to accompany these observations with elements. The planet has the brightness of 11 mag., and being still far from opposition, it may be observed for a long while with meridian instruments. At the suggestion of a friend, the planet has received already the name *Thisbe*, as it is not likely that it has been seen before elsewhere.

Hamilton College Observatory, Clinton, N.Y.
June 25, 1866.

INDEX.

Page

Airy, G. B., note on an error of expression in two Memoirs of the Astronomer Royal in the corrections to the elements of the Moon's orbit 27
——, ——, description of Abraham Sharp's quadrant..... 31
——, ——, remarks on the occultation-diameter of the Moon, as determined in Mr. Oudemans' papers 33
——, ——, on the supposed possible effect of friction in the tides in influencing the apparent acceleration of the Moon's mean motion..... 221
——, ——, on a method of computing interpolations to the second order without change of algebraical sign 246
Andes, proposition for a telescope on the, Lieut. Ashe 69
Antares, on companion of, Mr. Freeman 218
——, ——————, Mr. Cottam 244
——, spectrum of, Pad. Secchi 308
Ashe, E. D., physical constitution of the Sun 62
——, ——, proposition for a telescope on the Andes 69

Associates deceased, list of 103
Encke, J. F. 129

Associates elected 249
Astronomy, report on the progress of, in the year 1865–66 146

Barometer, depression in, by the vapour of mercury, Gen. Shortrede .. 307
Birmingham, J., on the new variable near ε *Coronæ* 310
Brodie, F., some observations on the solar craters which appeared on September 28 and October 8, 1865 19
Brothers, A., photographs of the Moon 62
Browning, J., on a new method of mounting silvered-glass specula and diagonal mirrors in reflecting telescopes 77
——————, —, on the advantages gained by substituting a reflecting prism for the diagonal mirror in a silvered-glass speculum 301
Brunnow, F., ephemeris of *Iris* for the opposition of 1866 218
Buckingham, J., supposed observation of Biela's Comet 271
Burr, T. W., note on ζ *Herculis* 61

ε Canis Majoris, on small star near, Mr. Freeman 245
Carrington, R. C., notice of a recent Memoir of Prof. Krueger of Helsingfors on the star-cluster in λ *Persei*..... 65
Chacornac, letter on the physical constitution of the Sun 62
Chambers, the new variable near ε *Coronæ* 298
Chevallier, Rev. T., observations of solar eclipse, October 19, 1865 .. 60
Clock, equatoreal, description of an, Lord Oxmantown 265
Cometary systems, M. Hoek..... 1, 204

Page

Comets :—
Biela's 241, 271
Encke's 29, 63
III. 1860 58
I. 1865 ..... 30, 84
Secchi's of 9 Dec. 1865 ..... 67, 81

Cottam, A., Companion to *Antares* 244

Dawes, Rev. W. R., on the effect produced by the angles of position of double-stars on the results of micrometrical measure of them ; with a description of a method by which such defect may be avoided or removed.... 281
De La Rue, W., award to him of the Lalande Prize by the French Academy of Sciences 245
———, Stewart, and Loewy, notes regarding the decrease of actinic effect near the circumference of the Sun, as shown by the Kew pictures 74
———, ———, —, ——, a comparison of the Kew results of observations of Sun-spots with those of Hofrath Schwabe at Dessau for the year 1865 76
Delaunay, abstract of his Memoir on the secular acceleration of the mean motion of the Moon 85
Donati, E., letter on Comet of 9 Dec. 1865 67
———, —, observations and elements of ditto 81

Earth's orbit, on change in the elements of, by sudden accession to the mass of the Sun, Mr. Waterston 288
Ellery, R. J., places of Comet I. 1865 (great Southern Comet) deduced from observations made at the Melbourne Observatory 30
Elliptic motion, on Lambert's theorem for, Prof. Sylvester 27
Errata 220, 280

Faye, M., notice of his paper on variable stars 310
Ferrel, notice of his paper of 1853, on the effect of the Sun and Moon upon the rotatory motion of the Earth 277
Fellows deceased, list of 102
Burder, W C. 103
Gompertz, B. 104
Hamilton, Sir W. R. 109
Lubbock, Sir J. W. 118
Smyth, Admiral W. H. 121
Fellows elected 1, 37, 69, 93, 193, 221, 249, 281
Fletcher, J., some remarks on the solar photosphere 23
Freeman, D. A., note on the Companion to *Antares* 218
———, ——, on a small star near ε *Canis Minoris* 245

Glaisher, J., the November meteoric shower 53
Glasgow Observatory, determination of longitude of, Prof. Grant..... 37
——— ———, account of time-signalling operations at..... 66
Goldschmidt, H., the new star of the year 393 A.C.: documents taken from the Chinese observations of Ma-tuan-lin, translated by Edouard Biot, and the remarks of M. Humboldt in his *Cosmos* 240
Graham, extract of a letter, on the new variable near ε *Coronæ*..... 297
Grant, Prof., on the determination on the difference of longitude between the Observatories of Greenwich and Glasgow, by galvanic signals 37
——, ——, account of the time-signalling operations at Glasgow 66
Greenwich observations of occultation of stars by the Moon, and phenomena of *Jupiter's* satellites..... 287

Page
Herschel, A. S., radiant points of shooting-stars 51
———, ——, path of a detonating meteor 211
———, Sir J. W. F., on a supposed observation of the new variable near ε *Coronæ*, extract of letters from 299
Hodgson, R., on the craters of the Moon..... 309
Hoek, M., on the comets of 1677 and 1683; 1860 III, 1863 I. and 1863 VI. 1
——, —., additions to the investigations on cometary systems 204
Howlett, Rev. F., on the great Sun-spot of October 1865..... 13
Huggins, W., on the stars within the trapezium of the nebula of *Orion* 71
———, —., results of some observations of the bright granules of the solar surface, with remarks on the nature of these bodies 260
———, —, spectrum of the temporarily bright star near ε *Coronæ*.... 275
———, —, diagram of the spectrum of absorption and the spectrum of bright lines forming the compound spectrum of the temporarily bright star near ε *Coronæ* 297
———, —, and Miller, W. A., note on the spectrum of the variable star α *Orionis*, with some remarks on the letter of the Rev. Father Secchi 215

Interpolations, the computation to the second order without change of algebraical sign, Mr. Airy 246

Jupiter's satellites, phænomena of, observations by Mr. Talmage 57
——— ———, Greenwich observations..... 287
——— third satellite, occultation of, Capt. Noble 309

Kaiser, investigations on Airy's double-image micrometer..... 103
——, same subject, letter to the Astronomer Royal..... 305
Knott, on the companion to *Sirius* 243

Lalande Prize, awarded to Mr. De La Rue 245
Loewy. See De La Rue, Stewart, and Loewy
Lunar theory, on error of expression in two memoirs of Mr. Airy, in corrections to elements of the Moon's orbit..... 26
———————, apparent acceleration depending on the effect of the tides on the rotation of the earth ... 221
———————, ———————, abstract of M. Delaunay's memoir 85
———————, ———————, Mr. Airy on same subject..... 221
———————, ———————, notice of Mr. Ferrel's paper of 1853 277

Mars, observations at Madras of R.A. and N.P.D., Mr. Pogson (abstract) 285
Micrometer, Airy's double image, investigations on, Prof. Kaiser..... 103
Miller, W. A. See Huggins and Miller.
Miscellaneous 35
Minor planets, (64) *Clio*, elements 34
———————, (85) discovery and elements..... ib.
———————, (87) *Sylvia*, Mr. Pogson 311
———————, (88) *Thisbe*, M. Peters 312
———————, *Iris*, ephemeris of..... 218
Moesta, observations of Comet III. 1860, made at the Santiago Observatory, Chili 58
Moon, photographs of, Mr. Brothers..... 62
——, remarks on Mr. Oudemans' occultation-diameter of, Mr. Airy .. 33
——, semidiameter by Hansen's tables, compared with observations, M. Oudemans 249
——, craters of, Mr. Hodgson..... 309

Noble, Capt. W., occultations of stars by the Moon, observed at Forest Lodge, Maresfield 63
——, ——— , occultation of *Jupiter's* third satellite, 17 Aug. 1866 309

Page

Observatories, account of proceedings of: —
Greenwich, Royal Observatory 135
Oxford, Radcliffe Observatory ..... ib.
Cambridge 137
Edinburgh, Royal Observatory 138
Glasgow 139
Liverpool ..... ib.
Kew 140
Cranford (Mr. De La Rue's) 142
Wrottesley (Lord Wrottesley's) 143
Tarnbank (Mr. Fletcher's) ..... ib.
Mr. Huggins' 144

Occultations of stars by the Moon: —
observed at Leyton, Mr. Talmage 57, 82, 218, 243
———— Maresfield, Capt. Noble 63
———— Greenwich 287

Orion, nebula of: —
Mr. Huggins 71
Mr. Webb 208
α Orionis, spectrum of 214, 274

Oudemans, the semidiameter of the Moon according to M. Hansen's Tables, compared with the results of the best observations 249
Oxmantown, Lord, description of an equatoreal clock 265

Personal equation, in Reading Microscopes, Mr. Stone 48
Peters, C. H. F., discovery of Minor Planet (88) *Thisbe* 312
Pogson, N., equatoreal observations of R.A. of *Mars* and neighbouring stars for the determination of the Sun's parallax, made with the equatoreal of the observatory of Madras, in the year 1862, and meridional observations of N.P.D. of *Mars* and neighbouring stars, made with the meridian circle (abstract).... 285
————, discovery of Minor Planet (87) *Sylvia* 311

Quadrant, Abraham Sharp's, description of, Mr. Airy 31

Recent publications 303
Reflecting prism, advantage of substituting for diagonal mirror, Mr. Browning 301

Secchi, Rev. P., observations of double stars 62
——, ——, on spectrum of α *Orionis* 214, 274
——, ——, on spectrum of *Antares* 308
Shooting stars, November shower, Mr. Glaisher 53
————, path of a detonating meteor, Mr. Herschel 211
————, radiant points of, Mr. Herschel 51
Shortrede, Gen., the depression of the barometric column by the vapour of mercury 307
Sirius, the companion of, Mr. Knott 243
——, ————, M. Struve 268
Smalley, G. R., observations of Encke's Comet 63

Society: —
Report of Council to forty-sixth annual meeting 94
List of papers, Feb. 1865 to Feb. 1866 152
Library, list of donors to 155
President's address on delivery of medal to Prof. Adams 157
Officers and Council for 1866–67 191

Page
Solar eclipse, Oct. 19, 1865, Mr. Chevallier 60
———, ———, ——, Lord Wrottesley 64

Solar spots, and photosphere, &c. : —
Comparison of Kew observations of Sun-spots with those of Schwabe at Dessau for year 1865, Messrs. De La Rue, Stewart, and Loewy..... 76
Observations of the bright granules, &c., Mr. Huggins 260
Physical constitution of the Sun, Lieut. Ashe..... 61
———————————, M. Chacornac 62
Remarks on solar photosphere, Mr. Fletcher 23
Solar craters of Sept. 28 and Oct. 8, 1865, Mr. Brodie 19
Sun-spot of Oct. 1865, Mr. Howlett..... 13

Spectra of stars, *α Orionis* 214, 215, 274
———————, new variable near *ε Coronæ* 275
Star, the new, of the year 393 A.C., M. Goldschmidt 240
Stars, telescopic disks of, Mr. Stone..... 45
——, Double, effect of angles of position on results of micrometrical measures of them..... 281
——, Double or Multiple, *ζ Herculis*, Mr. Burr 61
——, ——, ———, double stars, Pad. Secchi 62
——, ——, ———, cluster in *λ Persei*, Prof. Krueger 65
——, Variable, *η Argûs*, Mr. Tebbutt 84
——, ———, Kirch's variable *in Collo Cygni*, Mr. Stone 272
——, ———, new variable near *ε Coronæ*, Mr. Chambers..... 298
——, ——, ———————, Mr. Graham..... 297
——, ———, ———————, Sir J. Herschel..... 299
——, ———, ———————, Mr. Huggins 275, 297
——, ———, ———————, Mr. Stone..... 292
——, ———, ———————, Mr. Birmingham..... 310
Stewart, B. See De La Rue, Stewart, and Loewy.
tone, E. J., on the telescopic disks of stars 45
——, ——, on personal equation in Reading Microscopes 48
——, ——, note on Kirch's variable *in Collo Cygni* 272
——, ——, observations of the extraordinary variable lately discovered near *ε Coronæ* 292
Struve, O., on the satellite of *Sirius*..... 268
Sun, decrease of actinic effect near circumference of, Messrs. De La Rue, Stewart, and Loewy..... 77
Sylvester, J. J., on Lambert's theorem for elliptic motion..... 24

Talmage, C. G., observations of occultations of stars by the Moon, and phenomena of *Jupiter's* satellites, made at Mr. Barclay's observatory, Leyton, N.E..... 57
———, ——, occultation of 115 *Tauri* by the Moon 82
———, ——, ——— 130 *Tauri* by the Moon 218
———, ——, ——— 31 *Arietis*, 1866, March 9 243
———, ——, on a probable observation of Biela's comet 241
Tebbutt, J., observations of Encke's comet 29
———, —, observations of *η Argûs* 83
———, —, elements of Comet I. 1865 84
Telescopes, reflecting, a new method of mounting silvered glass specula and diagonal mirrors in, Mr. Browning 77

Waterston, J. J., on the change that would take place in the elements of the Earth's orbit by a sudden accession to the Sun's mass 288
Webb, Rev. T. W., notice of the great nebula of *Orion* 208
Wrottesley, Lord, observations of solar eclipse, Oct. 19, 1865 64

CONTENTS.

	Page
Extract of a Letter from Prof. F. Kaiser, of Leiden, to the Astronomer Royal, dated 1 August, 1866	305
On the Depression of the Barometric Column by the Vapour of Mercury, by Mr. Shortrede	307
On the Spectrum of *Antares*, by the Rev. Father Secchi	308
On the Craters of the Moon, by Mr. Hodgson	309
Occultation of *Jupiter's* Third Satellite, by Capt. Noble	ib.
The New Variable near ε *Coronæ*, by Mr. Birmingham	310
Notice of M. Faye's Paper on Variable Stars	ib.
Minor Planet (87) *Sylvia*, by Mr. Pogson	311
Minor Planet (88) *Thisbe*, by Mr. Peters	312
Index	313

Printed by STRANGEWAYS and WALDEN, Castle St. Leicester Sq. and Published at the Apartments of the Society, October 22, 1866.

LIST OF PRESENTS

RECEIVED DURING THE SESSION OF 1865–66,

AND OF

BOOKS PURCHASED WITH THE TURNOR FUND

DURING THE SAME PERIOD,

FORMING

APPENDIX XVII.

To the Catalogue of the Library of the Royal Astronomical Society.

Academy of Sciences of the Institute of France, Comptes Rendus hebdomadaires des Séances, tomes lx., Nos. 20 to 26, lxi., 4to. *Paris*, 1865–66 — L'Académie des Sciences.

Adler, M. N., Memoir of the late Benj. Gompertz, Esq., F.R.S., &c., 8vo. *London*, 1866 — The Author.

Airy, Geo. Biddell, Essays. —
On the Invasion of Britain by Julius Cæsar.
The Invasion of Britain by Plautius and by Claudius Cæsar.
The Early Military Policy of the Romans in Britain.
The Battle of Hastings, with Correspondence. 4to.
London, 1865

American Academy of Arts and Sciences, Proceedings, vol. vi., parts 23 to 38, 8vo. 1865 — The Academy.

American Academy of Natural Sciences, Proceedings, 1865, Nos. 1 to 5, 8vo. *Philadelphia*, 1865 — ——

American Philosophical Society, Transactions, vol. xiii., part 1, 4to. *Philadelphia*, 1865 — The Society.

—— Proceedings, Nos. 71–73, and List of Members, Jan. 1865, 8vo. *Philadelphia*, 1865 — ——

The Society. American Philosophical Society, Catalogue of Library, 8vo. *Philadelphia*, 1863

The Academy. Amsterdam Royal Academy, Verhandelingen, vol. x., 4to. *Amsterdam*, 1864

——— ———————————, Verstagen en Mededeelingen, vol. xvii., 8vo. *Amsterdam*, 1865

——— ———————————, Jaarboek . . . 1863–4, 8vo. *Amsterdam*, 1863–4

Le Bureau des Longitudes. Annuaire des Marées pour l'an 1866, 12mo. *Paris*, 1865

The Author. Astrand, J. J., Let og Noiagtig Methode for bestemmelse af der paakommende Bredde og Langde om Meddagen samt Compassets Misvisning uden Hjielp af Logarithmer, 4to. *Bergen*, 1864

J. G. Barclay, Esq. Barclay, J. G., Astronomical Observations taken during the years 1862–4, at his private Observatory, Leyton, Essex, 4to. *London*, 1865

The Society at Batavia. Batavia, Naturkundig Tijdschrift voor Nederlandsch Indie, Deel 26, 8vo. *Batavia*, 1864

The Academy. Berlin Royal Academy of Sciences, Abhandlungen, 1864, 4to. *Berlin*, 1865

——— ———————————— Monatsbericht, 1865, Jan. 1866, 8vo. *Berlin*, 1866

——— ———————————— Auzug aus dem Monatsbericht. Prof. Spoerer über die Sonnenflecken, 8vo. *Berlin*, 1865

The Berlin Observatory. Berlin, Astronomisches Jahrbuch 1868, 4to. *Berlin*, 1866

The Society. Berlin Society of Physics, Die Fortschritte der Physik im Jahre 1863, parts 1, 2, 8vo. *Berlin*, 1865

The Board of Trade. Board of Trade, Twelfth and Thirteenth Numbers of Meteorological Papers published by their authority, 8vo. *London*, 1865

The Academy. Bologna Academy of Sciences, Memorie della Accademia, Serie ii., tomo iii., iv., 4to. *Bologna*, 1865

——— ———————————— Indice Generale, 1850 to 1861, 4to. *Bologna*, 1864

Bologna Academy of Sciences, Rendiconto, 1863–4, 8vo. *Bologna*, 1864 — The Academy.

Bombay, Magnetical and Meteorological Observations made at the Government Observatory in the year 1863, 4to. *Bombay*, 1864 — H. M. Government.

British Association for the Advancement of Science, Report of Meeting held at Bath, 1864, 8vo. *London*, 1865 — The Association.

Brussels Royal Academy, Mémoires Couronnées et Mémoires des Savants Etrangers, tome xxxii., 4to. *Bruxelles*, 1865 — The Academy.

——— Mémoires Couronnés et autres Mémoires publiées par do. in 8vo., t. xvii., 8vo. *Bruxelles*, 1865 — ———

——— Bulletins, tomes xviii. xix., 8vo. *Bruxelles*, 1864–5 — ———

——— Annuaire, 1865, 8vo. *Bruxelles*, 1865 — ———

Brussels Royal Observatory, Annuaire, 1865, 12mo. *Bruxelles*, 1864 — The Royal Academy, Brussels.

Chacornac, M., Du Soleil et de son Atmosphère, sheet, *Paris*, —— — The Author.

——— Notice sur la Constitution Physique du Soleil, 8vo. *Paris*, 1860 — ———

——— Tracts. — ———

Intensité Comparative de la Lumière refléchie par la Surface Lunaire et celle de Venus.
Intensité Lumineuse des divers regions du Disque Solaire.
Du Pouvoir Réflecteur du Surface au Sol considéré par rapport à celui des Nuages cumulus vivement illuminés.
De la Structure et de l'Origine des Volcans Solaires.
Lithographic sheets. *Paris*, 1865

Christiania, Meteorologische Beobachtungen aufgezeichnet auf Christiania Observatorium, 1 Band, 1837–63, long 8vo. *Christiania*, 1865 — The Observatory.

——— Meteorologische Jagttagelser paa Christiania Observatorium, 1864, long 8vo. *Christiania*, 1865 — ———

W. R. Birt, Esq. — Cole, William, Philosophical Remarks on the Theory of Comets, to which is subjoined a Dissertation on the Nature and Properties of Light, 8vo. *London*, 1823

The Coll. Romano. — Collegio Romano, Bulletino Meteorologico del Osservatorio, vol. iv. No. 5, vol. v. No. 1, folio. *Roma*, 1865

W. R. Birt, Esq. — Comets, Cometomantia, a Discourse on Comets, 12mo. *London*, 1684

The Author. — Delaunay, M., Sur l'Existence d'une cause nouvelle ayant une influence sensible sur la Valeur de l'Equation Séculaire de la Lune, 4to. *Paris*, 1865

——— — De Morgan, Augustus, On Infinity and on the Sign of Equality, 4to. *London*, 1865

——— — Denison, E. B., Astronomy without Mathematics, 12mo. *London, s. d.*

Le Dépôt Gén. de la Marine. — Dépôt Général de la Marine, Annales Hydrographiques pour 1864–5, 8vo. *Paris*, 1864–5

——— — ——— Chronomètres, Recherches sur les, vii. viii. Cahiers, 8vo. *Paris*, 1864

——— — ——— Instruction pour le Micromètre Lugeol a Cadran Lorièux, par M. Bosc, 8vo. *Paris*, 1865

——— — ——— Instructions Nautiques sur les Côtes de Corse, par M. Sallot des Myers, 8vo. *Paris*, 1865

——— — ——— Instructions Nautiques pour les principaux parts de la Côte Est de l'Amérique du Nord, par M. MacDermott, 8vo. *Paris*, 1864

——— — ——— La Loi des Tempêtes, par H. W. Dove, 8vo. *Paris*, 1864

——— — ——— Madagascar, Côte Orientale, par M. Germain, 8vo. *Paris*, 1864

——— — ——— Manuel de la Navigation dans la Mer des Antilles et dans le Golfe de Mexique, 3^{me} Partie, par C. P. De Kerhallet, 8vo. *Paris*, 1864

——— — ——— Mer du Nord, iv. Partie, par A. Le Gras, 8vo. *Paris*, 1864

Dépôt Général de la Marine, Mer de Chine, 1re Partie; Instructions Nautiques, par M. A. Le Gras; Supplement, par M. Costa, 8vo. *Paris*, 1865 — Le Dépôt Gen. de la Marine.

——— La Pilote de la Nouvelle Zélande; traduit de l'Anglais, par A. Jouan, 1re et 2de Parties. *Paris*, 1865 ———

——— Pilote du Golfe Saint Laurent, par Amiral H. W. Bayfield; Traduction par A. MacDermott, 8vo. *Paris*, 1865 ———

——— Renseignements sur la Navigation des Côtes et des Rivières de la Guyane Française, par E. M. Couy, 8vo. *Paris*, 1865 ———

——— Renseignements sur quelques Mouillages de la Côte d'Islande et de Norvêge, par M. Thoyon, 8vo. *Paris*, 1865 ———

——— Pilote de la Mer Noir, traduit du Russe, par A. De la Planche, Côte d'Asie. *Paris*, 1865 ———

——— Routier de la Côte Nord d'Espagne, par A. Le Gras, 8vo. *Paris*, 1864 ———

——— Routier de l'Ile Aurigny, &c., traduit de l'Anglais, par M. Jules Vavin, 8vo. *Paris*, 1865 ———

——— Supplement au Routier de l'Australie, tome 2me, 8vo. *Paris*, 1865 ———

Dublin International Exhibition, 1865. Kingdom of Italy, Official Catalogue, 8vo. *Turin*, 1865 — Royal Italian Commission.

Edinburgh, Royal Society, Transactions, vol. xxiv., part i., 4to. *Edinburgh*, 1865 — The Society.

——— Proceedings, 1864–65, 8vo. *Edinburgh*, 1865 ———

Emmens, S. H., Selections from Locke's Essay on the Human Understanding, with Introduction and Notes, 8vo. *London*, 1866 — The Author.

The Society. Geneva Society of Physics, Mémoires, tome xviii., 1re partie, 4to. *Génève*, 1865

The Author. Glaisher, James, An Account of Meteorological and Physical Observations made in five Balloon Ascents in 1863, in continuation of eight made in the preceding year, 8vo. *London*, 1865

Prof. Grant. Glasgow University, Report of the Professor of Astronomy, 8vo. *Glasgow*, 1866

J. R. Hind, Esq. Godward, W., Jun., Auxiliary Tables for Computing an Approximate Ephemeris of a Minor Planet, where the Angle of Excentricity does not exceed 20 Degrees, 4to. *London*, 1866

The Society. Göttingen Royal Society, Nachrichten, 1864, 8vo. *Göttingen*, 1865

——— ——— Gelehrte Anzeigen, 1864, vols. i. ii., 8vo. *Göttingen*, 1865

The Author. Gray, Peter, Tables for the Formation of Logarithms and Antilogarithms to twelve places, with Explanatory Introduction, 8vo. *London*, 1865

——— Haggard, W. D., Some Comments on Portions of the "Life of Abraham Newland," and Remarks on our present Monetary System, 8vo. *Westminster*, 1866

——— Hankel, W. G., Elektrische Untersuchungen, No. 4, 8vo. *Leipsig*, 1865

——— Hansen, P. A., Darlegung der theoretischen Berechnung der in den Mondtafeln angewandten Störungen, Zweite Abhandlung, 8vo. *Leipsig*, 1865

——— ——— Geodatische Untersuchungen, 8vo. *Leipsig*, 1865

——— ——— Relationen einestheils zwischen Summen und Differenzen und anderntheils zwischen Integralen und Differentialen, 8vo. *Leipsig*, 1865

——— Harrison, R., Catalogue to the London Library, St. James's Square, 8vo. *London*, 1865

Harvard College, Report of the Committee of Overseers for 1864, 8vo. *Boston* (*U.S.*), 1865 — The Observatory at Harvard College.

Herschel, A., Stars in the Constellations of *Bode* visible in Latitude of Greenwich, atlas. — A. Herschel, Esq.

Hertsprung, S., Reduction af Maskelyne's Iagttagelser af smaa Stjerner anstillede i aarene fra 1765 til 1787, 4to. *Copenhagen*, 1865 — The Author.

Hough, W. G., Description of an Automatic Registering and Printing Barometer, 8vo. *Albany*, 1865 — ———

Journals. The American Journal of Science and Art, Nos. 118 to 122, 8vo. *Newhaven* (*U. S.*), 1865 — The Editors.

——— Royal Asiatic Society, Bombay Branch, Journal, No. 22, 8vo. *Bombay*, 1865 — The Society.

——— Journal, n. s., vol. i., pt. 2, to vol. ii., pt. 1, 8vo. *London*, 1865 — ———

——— The Assurance Magazine, Nos. 60 to 63, 8vo. *London*, 1865–66 — Institute of Actuaries.

——— General Index to first ten volumes, 8vo. *London*, 1864 — ———

——— Astronomische Nachrichten, Nos. 1531 to 1586, 4to. *Altona*, 1865–66 — Dr. Peters.

——— The Astronomical Register, Nos. 30 to 42, 8vo. *London*, 1865–66 — S. Gorton, Esq.

——— The Athenæum Journal, Nos. 1963 to 2014, 4to. *London*, 1865–66 — The Editors.

——— The Canadian Journal, Nos. 57 to 61, 8vo. *Toronto*, 1865–66 — The Canadian Institute.

——— Cosmos, v. n., for 1865–66, 8vo. *Paris*, 1865–66 — The Editor.

——— Dublin Royal Society, Journal, No. 34, 8vo. *Dublin*, 1866 — The Society.

——— Franklin Institute, Journal, Nos. 473 to 483, 8vo. *Philadelphia*, 1865–66 — The Institute.

The Royal Geographical Society. — Journals. Geographical Society (The Royal), Journal, vol. xxxiv., 8vo. *London*, 1865

——— — ——— — ——— — ——— — ——— — ——— Proceedings, vol. ix., No. 3, to vol. x., No. 3, 8vo. *London*, 1865–66

The Geological Society. — ——— Geological Society, Quarterly Journal, Nos. 83 to 86, 8vo. *London*, 1865–66

J. Herapath, Esq. — ——— Herapath's Railway Journal, Nos. 1357 to 1408, 4to. *London*, 1865–66

The Horological Institute. — ——— The Horological Journal, Nos. 83 to 94, 8vo. *London*, 1865–66

The Editor. — ——— The Intellectual Observer, Nos. 42 to 53, 8vo. *London*, 1865–66

S. M. Drach, Esq. — ——— The Ladies' Diary, 1724, 27, 30, 33, 34, 38, 39, 99, 8vo. *London, v. y.*

The Society. — ——— Linnean Society, Journal of Proceedings, vol. viii., Nos. 31, 32. *London*, 1864

The Editor. — ——— The London Review, Nos. 258 to 309, folio. *London*, 1865–66

M. l'Abbé Moigno. — ——— Les Mondes, v. n., 8vo. *Paris*, 1865

The Editor. — ——— Le Moniteur Scientifique, Nos. 203 to 226, 8vo. *Paris*, 1865–66

Dr. Francis. — ——— The Philosophical Magazine, Nos. 200 to 212, 8vo. *London*, 1865–66

The Photographic Society. — ——— The Photographic Journal, Nos. 155 to 169, 8vo. *London*, 1865–66

The Editor. — ——— The Quarterly Journal of Science, Nos. 7 to 10, 8vo. *London*, 1865–66

——— — ——— The Reader, Nos. 128 to 175, folio. *London*, 1865

The Royal Institution. — ——— Royal Institution, Journal, Nos. 41 to 43, 8vo. *London*, 1865–66

The R. United Service Institution. — ——— Royal United Service Institution, Journal, Nos. 34 to 38, 8vo. *London*, 1865–66

The Society of Arts. — ——— Society of Arts, Journal, Nos. 655 to 706, 8vo. *London*, 1865–66

Karlinski, F. M., *Hestiæ* Planetæ Minoris 46, Elementa Nova, 4to. *Cracoviæ*, 1865 — The Author.

Krueger, A., Der Sternhaufen *h Persei* Beobachtungen desselben am Bonner Heliometer nebst diren Berechnung, 4to. *Helsingfors*, 1865 — ———

Lancashire Historic Society, Transactions, N.S., 1864, 8vo. *Liverpool*, 1865 — The Lancashire Historic Society.

Leeds Philosophical and Literary Society. Annual Report, 1864–65, 8vo. *Leeds*, 1865 — The Society.

Leipsig Society, Berichte uber die Verhandlungen der K. Sachsischen Gesellschaft der Wissenschaften, 1864, 8vo. *Leipsig*, 1865 — The Society.

Liebig, J. von, Induction und Deduction, 8vo. *München*, 1865 — The Author.

Linsser, Carl, Vier von de L'Isle beobachtete Plejaden-Bedeckungen bearbeitet und mit Hansen's Mond-Tafeln verglichen, 4to. *St. Petersburg*, 1864 — ———

Littrow, Karl von, Ueber eine Modification des Hansenischen Register Apparatus, 8vo. *Vienna*, 1860 — ———

Liverpool, Report of the Astronomer to the Marine Committee. Mersey Docks, &c. 1865, 8vo. *Liverpool*, 1866 — J. Hartnup, Esq.

——— Literary and Philosophical Society, Proceedings, No. 19, 8vo. *Liverpool*, 1866 — The Society.

Lombardy, Royal Institute. Memorie, vol. x. fasc. i. 4to. *Milano*, 1865 — The Institute.

——— Rendiconto, vol. i., f. 9, 10, vol. ii. f. 1. 2. 8vo. *Milano*, 1864–5 — ———

Madrid, Royal Academy of Sciences, Memorias, t. vi., 4to. *Madrid*, 1864–5 — The Madrid Royal Academy.

——— Resumen de las Actas, 4to. *Madrid*, 1864 — ———

——— Libros del Saber de Astronomia del rey D. Alfonso Rey De Castilla, t. iii. folio. *Madrid*, 1864 — ———

The Observatory. Madrid Royal Observatory, Anuario, 1865, 8vo. *Madrid*, 1865

——— ———————————, Resumen de las Observationes Meteorologicas hechas en el Real Observatorio de Madrid durante el Año del mismo nombre 1863, 4to. *Madrid*, 1864

The Library. Manchester Free Library, Catalogue of the Books, Reference Department, 8vo. *London*, 1864

The Author. Marth, A., Auxiliary Tables for the Solution of Lambert's Equation, with a few Remarks on the Determination of Cometary Orbits, 4to. *London*, 1865

——— (M'Clintock, Miss), A New Theory of Astronomy, derived from the latest discoveries, 12mo. *Dublin*, 1857

The Society. Meteorological Society, The British, Proceedings, Nos. 20 to 24, 8vo. *London*, 1865-66

The Author. Mittenius, G., Ueber die Hymenophyllaceæ, No. 2, 8vo. *Leipsig*, 1864

The Academy. Munich Royal Academy, Sitzungsberichte, 1865, ii. heft. 3, 4, 8vo. *München*, 1865

The Author. Nageli, Carl, Enstehung und Begriff der Naturhistorischen Art. Zweite auflage, 8vo. *München*, 1865

——— Nagy, K., Die Sonne und die Astronomie, 8vo. *Leipsig*, 1866

The Naples Royal Society. Naples, Royal Society, Rendiconto, July 1860, 4to. *Naples*, 1864

The Lords Commissioners of the Admiralty. The Nautical Almanac for 1869, and Supplement, 8vo. *London*, 1865

The Author. Oudemans, J. A., Herlieding van de Waarnemingen gedaan door de Heeren S. H. en G. A. de Lange ter Bepaling van de Lengte van Menado, Kema, Boeton, Ternate en Makasar in de Jaren 1852 en 1853, 8vo. *Batavia, n.d.*

——— ———————————, Hernieuwde Bepaling van de Lengte van Batavia, 8vo. *Batavia, n.d.*

Oudemans, J. A., Verslag van de Dienstreizen, 8vo. *Batavia*, 1864 — The Author.

———————, Verslag van de Deinstreis van den Hoofd-ingenieur van de Geographische Dienst, in Julii en Augustus 1863, 8vo. *Batavia*, 1864 — ———

———————, Vervolg op het Verslag van de Bepaling der Geographische Ligging van dei Plaatzen op Java waar Telegraafkantoren gevestigd zijn, 8vo. *Batavia, n.d.* — ———

Palermo, Bulletino Meteorologico del R. Osservatorio, vol. i. No. 5 to vol. ii. No. 1, fol. *Palermo*, 1865 — The Observatory of Palermo.

——— Royal Institute, Giornale de Scienze Naturali ed Economiche, vol. i. f. 1, 2. fol. *Palermo*, 1865 — The Institute.

Parallax (Rowbotham) Zetetic Astronomy: Earth not a Globe. An Experimental Inquiry into the True Figure of the Earth, proving it a Plane without axial or orbital motion, and the only material World in the Universe, 12mo. *London*, 1865 — Mr. J. Williams.

Pieter Maritzburg, Meteorological Observations in 1864, folio. *Pieter Maritzburg*, 1865 — Dr. Mann.

Plantamour, E., Récherches sur la Distribution de la Temperature à la Surface de la Suisse pendant l'Hiver, 1863–4, 8vo. *Génève*, 1865 — The Author.

——————— Resumé Météorologique de l'Année 1864, pour Genève et le Grand St. Bernard, 8vo. *Genève*, 1865 — ———

Petersbourg, St., Académie Impérial des Sciences, Bulletins, t. vii., viii., folio. *St. Petersbourg*, 1865 — The Academy.

——————————————— Mélanges Mathématiques et Astronomiques : — The Authors.

1. Observations du Satellite de Sirius, par O. Struve.
2. Observations de quelques Nebuleuses, „
3. Neue Berechnung der Sirius Parallaxe, von H. Gylden.
4. Uber den Gang der Pulkowaer Normalurh, von A. Wagner, 8vo. *St. Petersburg*, 1864

The Observatory. Poulkowa Observatory, Jahresbericht am 17 Mai 1864 dem Comité der Nicolai Haupsternwarte abgestattet vom Director der Sternwarte, 8vo. *St. Petersburg*, 1864

The Author. Pratt, John H., Archdeacon of Calcutta, A Treatise on Attractions: La Place's Functions and the Figure of the Earth, 8vo. *London*, 1865

——— Proctor, R. A., The Stars, in Twelve Maps on the Gnomonic Projection, ob. folio. *London*, 1866

——— Quetelet, A., Histoire des Sciences Mathématiques et Physiques chez les Belges, 8vo. *Brussels*, 1864

The Radcliffe Trustees. Radcliffe Observatory, Astronomical and Meteorological Observations in the year 1863, 8vo. *Oxford*, 1866

The Academy. Royal Irish Academy, Transactions, 6 parts of vol. xxiv. 4to. *Dublin*, 1864–5

——— ———————, Proceedings, vol. viii., vol. ix. pt. 1, 8vo. *Dublin*, 1864–5

The Society. Royal Scottish Society of Arts, Transactions, vol. vii., part i., 8vo. *Edinburgh*, 1865

——— Royal Society, Philosophical Transactions, vol. cliv., part 3; clv., parts 1 and 2, 4to. *London*, 1865

——— ———————— Proceedings, Nos. 75 to 83, 8vo. *London*, 1865

The Author. Ryan, Matthew, The celebrated Theory of Parallels: Demonstration of the celebrated Theorem, Euclid 1, axiom 12, 8vo. *Washington*, 1866

The Observatory. San Fernando Observatory, Almanaque Nautico para 1867.

The Author. Santini, Giov., Relazione intorno alle Attrazioni locali resultanti nei contorni di Mosca, 4to. *Venice*, 1865

——— Schonfield, E., Catalog von Veranderlichen Sternen mit Einschluss der Neuen Sternen, 8vo. *Manheim*, 1865

The Institution. Smithsonian Institution, Contributions to Knowledge, vol. xiv., 4to. *Washington*, 1865

Smithsonian Institution, Annual Report of Board of Regents, for 1863, 8vo. *Washington*, 1864 — The Institution.

——————————, Results of Meteorological Observation from 1854 to 1859, vol. ii. pt. 1, 4to. *Washington*, 1864 ——

Stanley, W. F., A Descriptive Treatise on Mathematical Drawing Instruments, 8vo. *London*, 1866 — The Author.

Stockholm Royal Academy, Handlingar, ny Foljd, Femte Bandet, Forsten Haftet, 1863, 4to. *Stockholm*, 1864 — The Academy.

——————————, Oversigt, Forhandlingar, 1864, 8vo. *Stockholm*, 1815 ——

Stonyhurst College Observatory, Results of the Meteorological and Magnetical Observations, 1865, 8vo. *Clitheroe*, 1866 — The College.

Strong, C. D., Sanctæ Vigiliæ, or Devout Musings on the Heavens, in verse, 12mo. *London*, 1844 — S. M. Drach, Esq.

Sydney, Government Observatory, Report of Astronomer for 1864, folio. *Sydney*, 1865 — G. R. Smalley, Esq.

Tasmania Royal Society, Reports for 1863, 1864, 8vo. *Hobart Town*, 1864–5 — The Royal Society, Tasmania.

——————————, Monthly Notices for 1863–4, 8vo. *Hobart Town*, 1863–4 ——

——————————, Abstracts of Meteorological Observations made in Tasmania during the six months ending June 1864, sheet. 1864 ——

Tornamiri, F. V. de, Chronographia y Repertorio de los Tiempos a lo Moderno, el qual trata varias y diversas cosas de Cosmographia, Sphera, Theorica de Planttas, Philosophie, &c. 4to. *Pampeluna*, 1585 — J. Buckingham, Esq.

Turin Royal Academy, Memorie, serie 2^do^. t. xxi. 4to. *Torino*, 1865 — The Academy.

——————————, Atti, 1865–6, 8vo. *Torino*, 1866 ——

The American Government. United States, The American Ephemeris and Nautical Almanac for 1866, 8vo. *Washington*, 1864

——— ———————, Asteroids for 1865 ; Supplement to American Ephemeris for 1866, 8vo. *Washington*, 1864

——— ———————, Almanac Catalogue of Zodiacal Stars, 8vo. *Washington*, 1864

——— ———————, Tables of Mercury for the use of the American Ephemeris by Jos. Winlock, 4to. *Washington*, 1864

——— ———————, Statistics of Foreign and Domestic Commerce of the United States, 8vo. *Washington*, 1864

Dr. Bache. ———————, Report of the Superintendent of the Coast Survey during 1862, 4to. *Washington*, 1864

The Society. Upsala Royal Society, Nova Acta, vol. ii. 4to. *Upsaliæ*, 1864

——— ———, Universitats Arsskrift, 1864, 8vo. *Upsala*, 1864

The Society. Victoria Royal Society, Transactions and Proceedings, vol. vi. 8vo. *Melbourne*, 1865

The Academy. Vienna Imperial Academy of Science, Denkschriften, Band xxiv., 4to. *Vienna*, 1865

——— ——————————— Sitzungsberichte, 1864, Band 51, 52, 53, 1865, 8vo. *Vienna*, 1865

The Austrian Government. Vienna, Reise der Osterreichischen Fregate Novara am die Erde in den Jahren 1857, 1858, 1859, Nautisch Physicalischer Theil iii. Abtheilung Meteorologisches Tagebuch, 4to. *Vienna*, 1865

The Author. Wackerbarth, A. F. D., Om. Planeten Neptunus, 8vo. *Upsala*, 1865

——— ———————, A Provisional Theory of Leda, 4to. *Upsala*, 1866

——— Wilcocks, Alex., Thoughts on the Influence of Ether in the Solar System, its relation to the Zodiacal Light, Comets, the Seasons, and periodical Shooting-Stars, 4to. *Philadelphia*, 1864

Winnecke, A., Pulkowaer Beobachtungen des hellen Cometen von 1862, nebst einigen Bemerkungen, 4to. *St. Petersburg*, 1864 — The Author.

Wolf, C., Recherches sur l'Equation personelle dans les Observations des passages, sa determination absolue, ses lois et son origine, 4to. *Paris*, 1866 — ———

Wolf, Rudolf, Mittheilungen über die Sonnenflecken, No. 18 et 21, 8vo. *Zurich*, 1865 — ———

Zoller, J. C. F., Theorie der Relativen Lichtstärke der Mondphasen, 8vo. *Leipsig*, 1865 — ———

————, Photometrische untersuchungen mit besonderer Rucksicht auf die physische Beschaffenheit der himmels Korper, 8vo. *Leipsig*, 1865 — ———

Miscellaneous.

Forty-Five Charts. — Le Depôt Général de da Marine.

A Diagram showing the Times of Sunrise and Sunset, also the Duration of Twilight and the Equation of Time for every day in the year in the Latitude of London, viz. 51°·30 N. by Charles Ansell. Sheet. — The Author.

Four Stereoscopic Slides of the Moon. — Josh. Beck, Esq.

Books, &c. purchased with the Turnor Fund.

Delaunay, C., Cours Elémentaire d'Astronomie, 8vo. *Paris*, 1865

Guillemin, Amédée, La Lune, 8vo. *Paris*, 1866

Kepler, Joh., Opera Omnia, vol. vi., part 1, 8vo. *Frankfurti*, 1865

Kirby, Joshua, Dr. Brook Taylor's Method of Perspective made Easy, both in Theory and Practice, with an Atlas of Plates, 4to. *London*, 1768

Lias, Emml., L'Espace Céleste et La Nature Tropicale, 8vo. *Paris*, 1866

Madler, J. H., Der Wunderbau des Weltals, oder Populaire Astronomie, with an Atlas of Plates, 8vo. *Berlin*, 1861

Schroeter, J. H., Seleno-topographische Fragmente zur-genauern Kenntniss der Mondfläche ihrer erlettenen Veranderungen und Atmosphäre sammt den dazu gehörigen specialcharten und zerechnungen, 2 vols. 4to. *Gottingen*, 1791–1802

BIBL. LONDIN. UNIV.